



IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF: :  
KIMIO INOUE : EXAMINER: SORKIN, D.L.  
SERIAL NO. 09/767,885 :  
FILED: JANUARY 24, 2001 : GROUP ART UNIT: 1723  
FOR: SCREW SET FOR EXTRUDER :

SECOND DECLARATION UNDER 37 C.F.R. § 1.132

ASSISTANT COMMISSIONER FOR PATENTS  
ALEXANDRIA, VA 22313

SIR:

The undersigned, Kimio Inoue, herein declares as follows:

1. That he has a doctorate degree of engineering, which was conferred upon him 1986 by Tokyo Metropolitan University located in Tokyo, Japan.
2. That he had been employed by Kobe Steel, Ltd. from 1968 to 1997 for 34 years and has been working as an adviser in Plastic Machinery Department, Machinery Plant, Kobe Steel, Ltd. for 6 years.
3. That he has worked for research and development of plastic and rubber processing machinery for more than 40 years, and invented and improved many plastic and rubber processing machines, such as 4 Wing H and N rotors of internal mixers, continuous mixers of MIXTRON LCM, NCM, etc.
4. That he is the inventor of U.S. patent application 09/767,885, filed on January 24, 2001 and is familiar with its description.
5. That he is familiar with the manner in which those skilled in the art of plastic

kneaders/extruders would interpret terms of art in the field of plastic kneaders/extruders.

6. That "kneading rotor" is a term of art in the field of plastic kneaders/extruders.

7. That those skilled in the art would understand that a "kneading rotor" has a kneading blade and has a structure to optimize kneading of the type of plastic material to be extruded by the kneader/extruder.

8. That a "screw segment" is a term of art in the field of plastic kneaders/extruders.

9. That those skilled in the art would understand that a "screw segment" has a structure to optimize the axial advancement of plastic material in the kneader/extruder.

10. That while a rotor segment comprised of at least one kneading rotor may axially advance the plastic material during the kneading thereof, it has a special configuration which is distinguishable from a screw segment. For example, a screw segment will have a small helix angle, whereas a kneading rotor will have a small twist angle. The definitions of the helix angle and the twist angle are shown in the attached Fig. 1. In a screw segment, the helix angle is 8 to 25 degrees (72 to 65 degrees in twist angle). In a kneading segment, the twist angle is 10 to 40 degrees (60 to 80 degrees in helix angle).

11. In light of the well understand functional and structural distinction in the art between a rotor segment comprised of at least one kneading rotor and a screw segment, those skilled in the art would not identify an element designed and used as a rotor segment in an extruder as a "screw segment".

12. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

Date: November 10, 2003 Kimio Inoue

Kimio Inoue

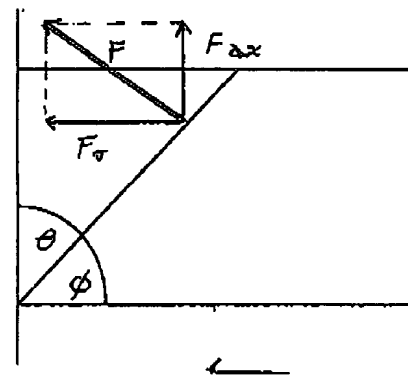
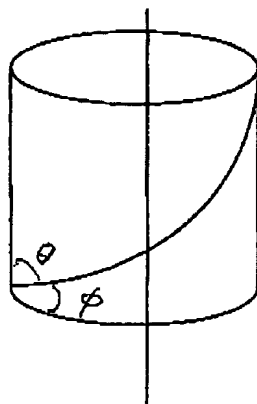
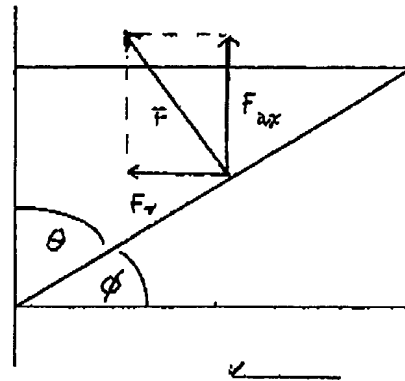
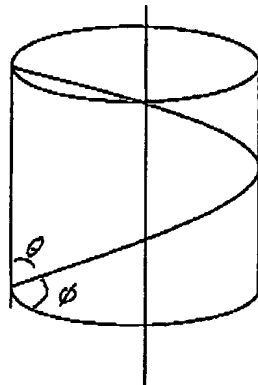


Fig 1 Twist angle ( $\theta$ ) and Helix angle ( $\phi$ ) of screw flight and rotor wing.